Name: _____   Date: _____

Intervals, Transformations, and Slope Solution (version 43)

1. The function f is graphed below.
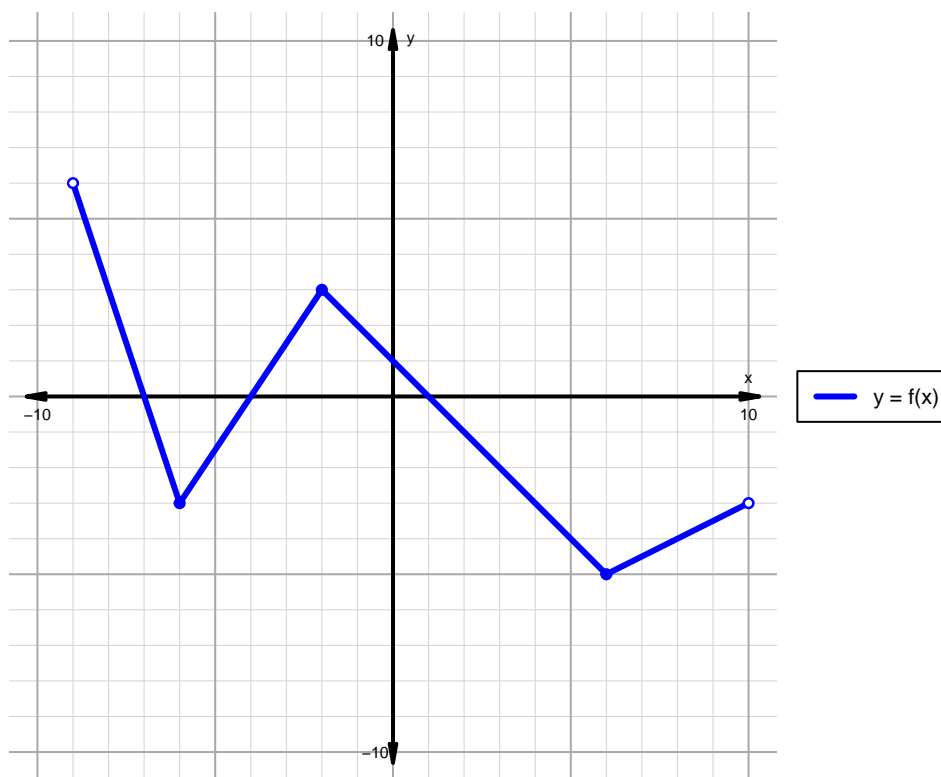
Indicate the following intervals using interval notation. Remember, you can use $\cup$ between two intervals to indicate the union. Except for range, all intervals will indicate x values; this is standard.

Feature	Where
Positive	$(-9, -7) \cup (-4, 1)$
Negative	$(-7, -4) \cup (1, 10)$
Increasing	$(-6, -2) \cup (6, 10)$
Decreasing	$(-9, -6) \cup (-2, 6)$
Domain	$(-9, 10)$
Range	$(-5, 6)$

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2. In the four graphs below, $y = f(x)$ is graphed as a dotted line. With a solid line, please graph the transformations indicated by the equations below.

$y = 2 \cdot f(x)$

$y = f(-2 \cdot x)$

$y = f(x) - 2$

$y = f(x + 2)$
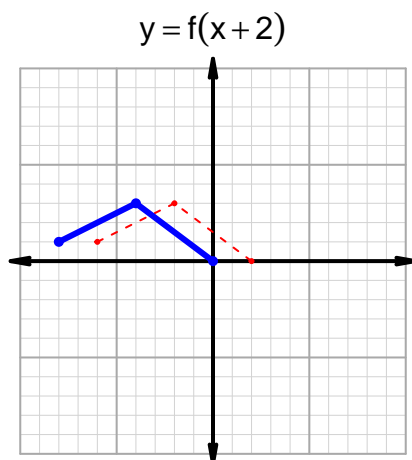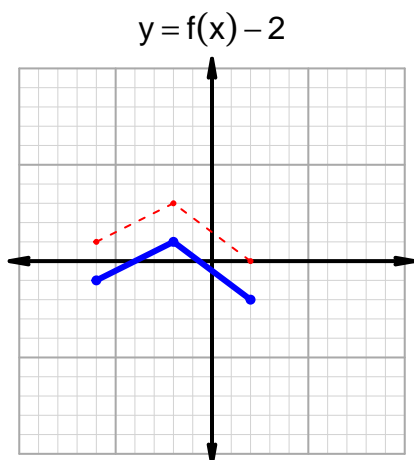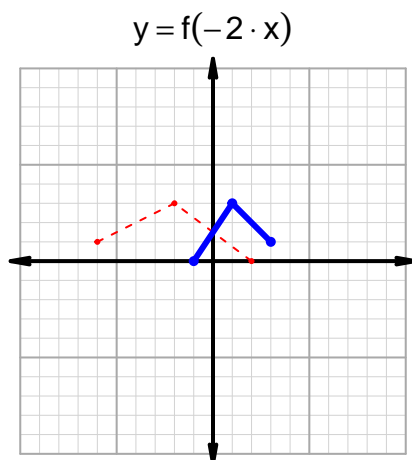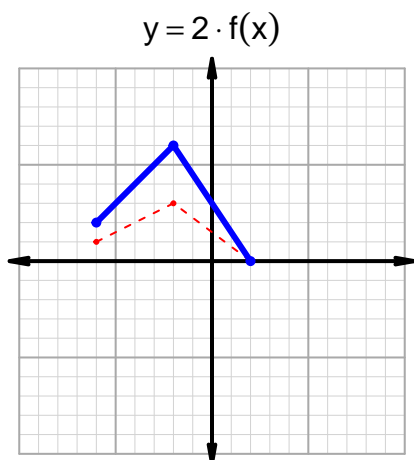
3. Let function g be defined by the table below. Use the formula $\frac{g(x_2) - g(x_1)}{x_2 - x_1}$ to find the average rate of change between $x_1 = 44$ and $x_2 = 56$. Express your answer as a reduced fraction.

x	$g(x)$
33	56
44	33
56	60
60	44

$\frac{g(56) - g(44)}{56 - 44} = \frac{60 - 33}{56 - 44} = \frac{27}{12}$

The greatest common factor of 27 and 12 is 3. Divide numerator and denominator by the greatest common factor.

$$\text{AROC} = \frac{9}{4}$$